



Benzodiazepine Prescribing Among Homeless vs. Domiciled U.S. Veterans



Katherine A. Koh MD, MSc^{1,2}, Dorota Szymkowiak PhD³, Jack Tsai PhD, MSCP³
¹Massachusetts General Hospital, ²Boston Health Care for the Homeless Program, ³U.S. Dept of Veteran Affairs

INTRODUCTION

- Despite high reported illicit use of benzodiazepines (BZ) in the homeless population and significant risks associated, patterns of **BZ prescribing for the homeless population have never been examined.**
- Previous studies demonstrating **high rates of illicit BZ use** in the homeless population give reason to believe that homeless individuals may be prescribed BZs at a higher rate than the domiciled population.

METHODS

- First, homeless and domiciled veterans were compared on their sociodemographic, clinical characteristics, and BZ prescriptions with **chi-square tests.**
- Second, multivariable analyses were conducted using **logistic regression** to examine characteristics associated with any BZ use, any short-acting BZ use, and any long-acting BZ use.
- Third, among both homeless and domiciled veterans prescribed any BZs, **descriptive analyses** were conducted to examine the extent to which RPIP were present in both the homeless and domiciled group.

RESULTS

Frequency and use of short- and long-acting benzodiazepines

Medications	Domiciled (N=2,806,893)		Homeless (N=246,568)		X ² test	p-value	Δ%
	Count	%	Count	%			
Any benzodiazepine	249,170	9.43%	17,607	6.18%	977.9	<.001	-1.95
Any short-acting	147,628	5.59%	9,660	3.40%	946.8	<.001	-1.48
Alprazolam	51,235	1.94%	2,619	0.92%	852.6	<.001	-0.83
Oxazepam	461	0.02%	54	0.02%	3.1	.081	+0.00
Estazolam	17	0.00%	1	0.00%	0.2	.651	+0.00
Triazolam	414	0.02%	17	0.01%	9.2	.001	-0.01
Lorazepam	74,088	2.80%	6,055	2.12%	40.4	<.001	-0.23
Temazepam	20,627	0.78%	1,001	0.36%	372.3	<.001	-0.35
Midazolam	6,159	0.23%	264	0.10%	142.8	<.001	-0.12
Any long-acting	112,982	4.28%	9,163	3.19%	70.0	<.001	-0.38
Chlordiazepoxide	2,699	0.10%	998	0.34%	1837.8	<.001	+0.32
Diazepam	38,732	1.47%	3,263	1.17%	8.3	.001	-0.08
Clonazepam	72,989	2.76%	5,175	1.78%	254.5	<.001	-0.56
Flurazepam	146	0.01%	2	0.00%	9.1	.001	-0.01
Clorazepate	239	0.01%	4	0.00%	14.1	<.001	-0.01

Note: Short-acting is defined as a BZ with half-life ≤ 24 hours and long-acting a BZ with half-life > 24 hours.

- Among homeless veterans, 7.48% were prescribed BZs vs 9.43% (p<.001) in the domiciled group in unadjusted analyses.
- Adjusted for sociodemographic and clinical characteristics, there was **no significant difference in odds of being prescribed a BZ between groups** (OR 0.94, CI 0.88-1.01).
- **Homeless veterans prescribed BZs had more indicators of risky and potentially inappropriate prescribing** relative to the domiciled group, including multiple BZs prescribed at once (9.4% vs. 7.0%, p<.001), prescriptions in the presence of complicating diagnoses, co-prescriptions with opioids (20.9% vs 17.4%, p < .001), and co-prescriptions with other sedatives (55.1% vs 38.0%, p<.001).

Prescriptions for benzodiazepines among homeless veterans with contraindications

Contraindicating/complicating factors	Domiciled (N = 262,609)		Homeless (N = 18,387)		t test	p-value
	N	%	N	%		
Sociodemographics						
Over age 65	111,321	42.4%	2,768	15.1%	97.35	<.001
Benzodiazepine prescriptions						
High dosage						
Multiple benzodiazepines	18,295	7.0%	1,734	9.4%	-11.4	<.001
Prescribed extended durations (beyond 4 weeks)	181,838	69.2%	9944	54.1%	40.07	<.001
Current Psychiatric Diagnoses						
Alcohol use disorder	20,924	8.0%	5,560	30.2%	-64.96	<.001
Any drug use disorder	13,678	5.2%	5,170	28.1%	-68.51	<.001
Posttraumatic stress disorder	105,946	40.3%	7,434	40.4%	-0.23	.816
Medical diagnoses						
Illnesses affecting respiratory system	51,113	19.5%	3,719	20.2%	-2.49	.013
Pregnancy	508	0.2%	62	0.3%	-3.30	<.001
Narrow-angle glaucoma	1209	0.5%	78	0.4%	0.73	.467
Co-prescriptions with opioids and other sedatives						
Any opioid	45,709	17.4%	3,841	20.9%	-11.28	<.001
Buprenorphine	1,922	0.7%	762	4.1%	-23.07	<.001
Codeine	6,624	2.5%	590	3.2%	-5.14	<.001
Fentanyl	7,121	2.7%	307	1.7%	10.45	<.001
Hydrocodone	32,200	12.3%	2,564	13.9%	-6.39	<.001
Hydromorphone	2,134	0.8%	201	1.1%	-3.57	<.001
Meperidine	174	0.1%	10	0.1%	0.66	.507
Methadone	1,396	0.5%	155	0.8%	-4.52	<.001
Morphine	6,246	2.4%	489	2.7%	-2.30	.022
Nalbuphine	0	0%	0	0%	--	--
Nucynta	0	0%	0	0%	--	--
Other sedatives						
Any other sedative	99,815	38.0%	10,133	55.1%	-45.139	<.001
Gabapentin	67,930	25.9%	7,036	38.3%	-33.65	<.001
Pregabalin	11,130	4.2%	1,020	5.5%	-7.55	<.001
Clonidine	6,894	2.6%	1,070	5.8%	-18.21	<.001
Promethazine	5,592	2.1%	581	3.2%	-7.80	<.001
Quetiapine	26,109	9.9%	3,548	19.3%	-31.51	<.001

CONCLUSIONS

- Although homeless and domiciled veterans with mental illness were prescribed BZs at similar rates, **homeless veterans who received BZ prescriptions exhibited more characteristics of risky and potentially inappropriate prescribing relative to domiciled users.**
- Attention to more prudent prescribing of BZ in the veteran population is warranted.

REFERENCES

1. Olfson M, King M, Schoenbaum M. Benzodiazepine use in the United States. *JAMA Psychiatry* 2015;72(2):136-142.
2. Chatterjee A, Lopez D, Ramkellawan S, et al. "That's what we call the cocktail": non-opioid medication and supplement misuse among opioid users. *Substance Abuse* 2021;42(2):175-182.
3. Lembke A, Papac J, Humphreys K. Our other prescription drug problem. *N Engl J Med* 2018;378(8):693-695.
4. Tsai, J., Szymkowiak, D., & Radhakrishnan, R. (2020). Antipsychotic Medication Prescriptions for Homeless and Unstably Housed Veterans in the Veterans Affairs Health Care System. *The Journal of Clinical Psychiatry*, 82(1), 1137.